

U.S. Patent Application No. 09/857,490
Request for Reconsideration dated August 1, 2003
Reply to Office Action of May 1, 2003

REMARKS

Reconsideration and continued examination of the above-identified application are respectfully requested.

At page 2 of the Office Action, the Examiner acknowledges the applicants' election with traverse of Group I. However, the Examiner asserts that the applicants' arguments were not persuasive; therefore, the Examiner concludes that the election requirement is deemed proper and is therefore made final.

Also, at page 2 of the Office Action, the Examiner rejects claims 2 and 8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. According to the Examiner, in claim 2, the expression "deep fuel rich strategy" is subjective and unclear, and in claim 8, the expression "enhancement" is unclear. For the following reasons, this rejection is respectfully traversed.

The general maxim of claim interpretation is that the claims must be read in the light of the specification. With respect to the phrase "deep fuel rich strategy," this phrase is clearly explained in the specification. For instance, page 5, lines 9-15 of the present application states that "a furnace carbon black producing process employs a deep fuel rich combustion strategy, that is, employing an oxidant gas stream supplying less than eighty percent (80%) of stoichiometric oxygen, wherein the combustion gas feed stream to the combustion zone of the furnace is substantially entirely off-gas from the same and/or a different carbon black furnace, and wherein such off-gas (from which the carbon black has been substantially removed) is dewatered and preheated by means of plasma

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heating, and the oxidant gas stream is air, optionally being oxygen enhanced." [Emphasis added.] Furthermore, page 10, lines 9-13 of the present application states that deep fuel rich is described as "the amount of oxidant which is combined with the heated, dewatered off-gas stream is less than eighty percent (80%) of the amount required to completely combust the combustible components in the off-gas together with any supplementary combustible gas fed therewith to the burner portion of the carbon black furnace." Clearly, one skilled in the art, by reading claim 2 in view of the specification, would clearly understand the meaning and the steps involved in deep fuel rich strategy.

With respect to the term "enhancement," one skilled in the art, by reading page 6, lines 23-30 of the specification would clearly understand the meaning of the term "enhancement." According to page 6, lines 23-30, oxygen enhancement feed stream is introduced via feed line 22. Valve 24 in feed line 22 is adapted to control the oxygen enrichment flow via feed line 28 from oxygen source 30. Oxygen source 30 preferably operates a pressure-swing adsorption (PSA) process in view of its relatively low operating costs for producing enrichment oxygen for the oxidant gas feed stream. Therefore, one skilled in the art by reading claims 2 and 8 in view of the specification, would clearly understand the meaning of the phrases "a deep fuel rich strategy" and "enhancement." Accordingly, this rejection should be withdrawn.

At the bottom of page 2 of the Office Action, the Examiner rejects claims 1 and 2 under 35 U.S.C. §102(b) as being anticipated by Stokes (U.S. Patent No. 2,672,402). According to the Examiner, columns 2 and 3 of Stokes describe removing carbon and water from carbon black off-gas and recycling the off-gas. Furthermore, the Examiner asserts that Stokes also describes

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injection of oxygen. For the following reasons, this rejection is respectfully traversed.

Claim 1 of the present application recites a furnace carbon black producing process wherein off-gas from a carbon black furnace is dewatered and heated, following substantial removal of carbon black therefrom, and fed as a combustion gas feed stream to a burner portion of the same or different carbon black furnace.

Stokes relates to a process of producing carbon black and synthesis gas. According to column 3, lines 71-75 of Stokes, the recycled gas may be led from the carbon black collection system and recycled through a dryer to form part of the make material. Stokes, does not teach or suggest dewatering and heating the off-gas from a carbon black furnace, prior to "recycling" the off-gas. The advantages of preheating are discussed, for instance, at pages 7-9 of the present application. In accordance with the claimed invention, preheating the off-gas generates higher yields of carbon black at a given surface area and better production economics.

Stokes is nearly 50 years old, and it would seem highly unlikely that one skilled in the art looking to arrive at an improved process relating to the production of furnace carbon blacks would turn to such an old document, given that many advances in this field have been made since 1954. Furthermore, even if one skilled in the art refers to such an old document when attempting to produce an improved process, Stokes simply does not teach or suggest the use of a heating step during the recycling procedure. Accordingly, this rejection should be withdrawn.

At page 3 of the Office Action, the Examiner rejects claim 3 under 35 U.S.C. §103(a) as being unpatentable over Stokes. The Examiner asserts that Stokes describes removal by adsorption. The Examiner acknowledges that Stokes does not specify a PSA. However, the Examiner asserts

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that using PSA is a known form of adsorption and is thus an obvious expedient to remove water by adsorption. For the following reasons, this rejection is respectfully traversed.

The Examiner does not provide any evidence why one skilled in the art would think it would be obvious to dewater the off-gas by PSA. The use of a PSA with carbon black technology is not shown in Stokes and the Examiner has not met his burden under a §103 rejection to establish a prima facie case of obviousness. If PSA is used in carbon black technology for the present invention's purpose, as the Examiner alleges, then the Examiner must prove this point by showing prior art. Otherwise, the rejection cannot stand and should be withdrawn for this reason above. Furthermore, claim 3 is dependent on claim 1. Therefore, the reasons set forth above with respect to the patentability of claim 1 would also apply here. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn.

At page 3 of the Office Action, the Examiner rejects claims 4-8 under 35 U.S.C. §103(a) as being unpatentable over Stokes and further in view of Lynum et al. (U.S. Patent No. 5,527,518). The Examiner acknowledges that Stokes does not teach plasma heating. However, the Examiner asserts that column 5 of Lynum et al. describes plasma heating to make carbon black. Accordingly, the Examiner concludes that preheating the gases of Stokes is an obvious expedient to assure efficient combustion and restore the heat lost during the water-removal steps. For the following reasons, this rejection is respectfully traversed.

Lynum et al. relates to passing a preheated feedstock of methane and/or natural gas through a plasma torch to cause a pyrolytic decomposition of the feedstock. Thus, Lynum et al. does not teach or suggest recycling the off-gas, and further plasma heating the off-gas which has been

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preheated to a certain degree via a suitable heat exchanger. According to Lynum et al., a plasma torch increases the temperature of the feedstock to over 1600°C, which is the decomposition temperature for the raw material. This temperature is too high to be used for preheating the feedstock. Lynum et al. does not teach that the gases transported in a return pipe to the torch are preheated. Thus, one skilled in the art, by reading Lynum et al., would not use a plasma torch to preheat a recycled feedstock of Stokes, or heat an oxidant gas feed stream, preheat the combustion gases produced in a burner portion of the same or a different carbon black furnace. Instead, one skilled in the art, by reading Lynum et al. in view of Stokes, would conclude that a plasma torch is only used to decompose the feedstock instead of preheating the feedstock.

Additionally, Lynum et al. was patented in June 18, 1996 and shows the production of carbon black, wherein a preheated feedstock of methane and/or natural gas is passed through a plasma torch to decompose the feedstock. Therefore, the inventors of Lynum et al. obviously did not consider Stokes to be useful, wherein Stokes shows a recycled gas leaving the carbon black collection system and recycled through a dryer to form part of the make material. Lynum et al., it appears, did not consider Stokes to be relevant.

Accordingly, one skilled in the art, by reading Stokes in view of Lynum et al., would not select the elements from the two references for combination in a manner claimed by the applicants. The only way this rejection can be made is by the improper use of hindsight and the manipulation of the references in a manner not taught or suggested by either reference. Accordingly, this rejection should be withdrawn.

The Examiner is respectfully requested to contact the undersigned by telephone should there

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be any remaining questions as to the patentability of the pending claims.

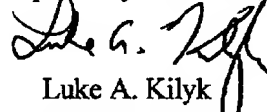
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CONCLUSION

In view of the foregoing remarks, the applicants respectfully request reconsideration of this application, and the timely allowance of all the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted


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